



Translation

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference M-1038	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP2003/004615	International filing date (day/month/year) 11 April 2003 (11.04.2003)	Priority date (day/month/year) 11 April 2002 (11.04.2002)
International Patent Classification (IPC) or national classification and IPC H01L 21/027, G03F 1/16		
Applicant HOYA CORPORATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☒ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 12 September 2003 (12.09.2003)	Date of completion of this report 09 June 2004 (09.06.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

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International application No.

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I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☒ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:

The common matter of claims 1-29 is an absorber of "a structure of at least two layers consisting of, as a lower layer, an exposure light absorbing layer composed of an absorber of an exposure light, and as an upper layer, a low-reflectance layer composed of an absorber of an inspection light used for a mask pattern inspection."

However, results of a search show that the constitution of the above absorber is found out to be conventionally known prior art disclosed in document [JP, 2001-237174, A (Oki Electric Industry Co., Ltd.), August 31, 2001 (08.31.01), paragraphs 0047-0062, Fig. 7].

In consequence, the constitution of the above absorber is not a special technical feature in the meaning of the second sentence of PCT Rule 13.2.

Further, claims 1-8, 11-23 and 29-44 are inventions having the same technical feature in terms of composition and constitution of a lower reflection of a Ta compound serving as an absorber layer of a reflection type mask.

Therefore, no common matter is found out among claims 1-8, 11-23 and 29-44, claims 9 and 10, claims 24-26 and claims 27 and 28. Also, no other common matter exists that could be considered a special technical feature in the meaning of the second sentence of PCT Rule 13.2; therefore, no technical relationship in the meaning of PCT Rule 13 can be found among these different inventions.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos. _____

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-5, 7, 8, 13, 15-26, 30-44	YES
	Claims	6, 9-12, 14, 27-29	NO
Inventive step (IS)	Claims	1, 3-5, 7, 30, 32-35	YES
	Claims	2, 6, 8-29, 31, 36-44	NO
Industrial applicability (IA)	Claims	1-44	YES
	Claims		NO

2. Citations and explanations

The inventions described in claims 3-5, 7, 30 and 32-35 appear to involve an inventive step over document 2 [JP, 2001-237174, A (Oki Electric Industry Co., Ltd.), August 31, 2001(08.31.01)] cited in the ISR.

The inventions described in claims 6, 9-12, 14 and 27-29 do not appear to be novel based on document 2 cited in the ISR.

The inventions described in claims 16 and 18-23 do not appear to involve an inventive step over document 2 cited in the ISR.

The inventions described in claims 13, 24-26, 36, 39 and 41-44 do not appear to involve an inventive step over document 2 and document 3 [JP, 6-95358, A (Toppan Printing Co., Ltd.), April 8, 1994 (04.08.94)] cited in the ISR.

Document 3 describes production of a photomask, wherein films of different layers are formed by continuously changing injection gases in the same chamber.

The invention described in claims 2, 8 and 31 do not appear to involve an inventive step over document 2 and document 4 [US, 5754619, A (NEC Corporation), May 19, 1998 (05.19.98)] cited in the ISR.

Document 4 describes an X ray-mask, wherein an X ray absorber layer is chemically stabilized as amorphous.

The inventions described in claims 15, 17, 37, 38 and 40 do not appear to involve an inventive step over document 2 and document 5 [JP, 7-333829, A (Hitachi Ltd.), December 22, 1995 (12.22.95)] cited in the ISR.

Document 5 describes a reflection type X ray mask using a buffer layer comprising Cr.

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VI. Certain documents cited

1. Certain published documents (Rule 70.10)

<u>Application No. Patent No.</u>	<u>Publication date (day/month/year)</u>	<u>Filing date (day/month/year)</u>	<u>Priority date (valid claim) (day/month/year)</u>
JP 2002-246299 A	30.08.2002	20.02.2001	
[E, X]			

2. Non-written disclosures (Rule 70.9)

<u>Kind of non-written disclosure</u>	<u>Date of non-written disclosure (day/month/year)</u>	<u>Date of written disclosure referring to non-written disclosure (day/month/year)</u>